**Can you provide us with more information on the disease state management?**

**The document below is the best response found by the OIC to the question. The document was produced by members of a multi-state agency workgroup of the Interagency Medical Directors committee.**

**Interagency Medical Directors**
**Disease State Management**
**April 11, 2003**

**Description:** "Disease State Management" (DSM) refers to a variety of strategies or programs which have a common aim: the provision of optimal health care to people with more complex and sometimes progressive disorders, particularly those likely to last for long periods of time (eg. Diabetes). DSM programs developed in response to the widespread disorganization of care and lack of evidence-based care for these target populations.

Regardless of the population or condition to which they are applied, DSM strategies generally enhance provider capacity to render cost-effective care, improve client function, and minimize future disability through:

1) Improvement of clinicians' knowledge and skills base with respect to evidence-based care for the condition of interest, including the use of national guidelines when available;
2) Provision of care that is as simple and well-coordinated as possible, recognizing that those affected by chronic conditions will require care from several areas within the health delivery system. This second point is true for all, but is particularly important for clients whose chronic conditions are complicated by co-morbidity and social vulnerability.

*Question relative to potential solutions:* Are there systematic, cost-effective methods for improving the delivery of care to persons with more complex or chronic health conditions, particularly methods likely to reduce or prevent impairment and disability?

## Appendix A
## Literature Review:

Strategies to improve the care of chronic disease have been reviewed in the literature recently, in an evaluation of the chronic care model[1] [2], and in a meta-analysis of DSM interventions[3]. The chronic care model is a conceptual framework that calls for a completely different relationship between people with chronic conditions and those who support their health. The model requires change in all components of care, defined in the model as self-management support, clinical information system, delivery system design, decision support, health care organization, and community resources. All components support the primary care practitioner and the client in the improvement of client health. The authors offer a number of examples in which process indicators for diabetes care, such as performance of HbA1C, foot exams, and eye exams were improved through implementation of the chronic care model. A second review article by the same authors also examines effects of model implementation on costs of care and finds decreases in costs of care for people with congestive heart failure, asthma, and diabetes.

The meta-analysis of DSM interventions reviewed 118 disease management programs that used a variety of interventions. The review found that patient education, provider education and provider feedback were the most common interventions, although most programs used more than one intervention. Provider interventions were associated with improved provider adherence to guidelines and with disease control. Patient interventions were also associated with improved disease control. The meta-analysis did not address associated cost reductions.

Although a number of studies have examined or reviewed the economic impact of disease management, the overall value of DSM programs is still under consideration. While many studies identify decreased cost with improved outcomes, the studies themselves are seldom designed as randomized, double blinded or peer reviewed. The evaluation may not include a comparison group. Further, data are often proprietary, and may not include all costs of care, such as program costs, costs of outpatient care, needed medications, or special training required for disease management.[4] [5] [6] [7] [8] [9]

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[1] Bodenheimer T, Wagner E, Grumbach K. 2002. Improving Primary Care For Patients With Chronic Illness. Journal of the American Medical Association 288 (14) 1775-1779

[2] Bodenheimer T, Wagner E, Grumbach K. 2002. *Improving Primary Care For Patients With Chronic Illness: The Chronic Care Model Part 2*. Journal of the American Medical Association 288 (15) 1909-1914

[3] Weingarten SR, Henning J, Bedamgarav E, Knight K, et al. 2002. *Interventions Used In Disease Management Programmes For Patients With Chronic Illness—Which Ones Work? Meta-Analysis Of Published Reports*. British Medical Journal 325 (7370) 925 -942

[4] Bodenheimer, T. 2000. *Disease Management In The American Market*. British Medical Journal 320: 563-566.

[5] Rubin, R., Dietrich, K., Hawk, A. 1998. *Clinical And Economic Impact Of Implementing A Comprehensive Diabetes Management Program In Managed Care*. Journal of Clinical Endocrinology and Metabolism 83 (8): 2635-42.

[6] Bodenheimer, T. 1999. *Disease Management – Promises And Pitfalls*. New England Journal of Medicine 340 (15): 1202-1205.

[7] Gregg, E., Narayan, K., Engelau, M. 1999. *Evaluating Diabetes Health Services Interventions: True Effects, Changing Tides Or Moving Targets?* Journal of Clinical Endocrinology and Metabolism 84(3): 820.

[8] Rossiter, L. et al. 2000. *The Impact Of Disease Management On Outcomes And Cost Of Care: A Study Of Low-Income Asthma Patients*. Inquiry 37 (2): 188-201.

Selection bias, for example limiting program participation to highest risk clients, may also maximize the documented savings, in ways not replicable when all clients participate in programs. DSM vendors may concentrate on short term strategies for cost containment, in order maximize profit, even though longer term interventions, such as lifestyle interventions may yield greater eventual savings, [10] [11]

In addition, the value of DSM initiatives may vary, in relation to the severity of disease. As two examples, an inner-city asthma intervention in Washington State reduced costs for children with more severe disease, although outcomes improved for all children in the intervention group.[12] In similar fashion, multidisciplinary DSM resulted in reduced acute care resource use for patients with functional class II heart failure, but in a 14-fold increase in costs for people with functional class I. [13]

While many disease management programs have concentrated on asthma, diabetes, and heart disease, similar strategies may improve the organization of care for other conditions. Substance abuse is a chronic condition with a number of adverse effects. Timely treatment has been shown to save money and improve health status, both nationally and in Washington State. Alcohol or other drug addiction occurs in all sectors of society regardless of age, education, race/ethnicity, gender, occupation, or socio-economic status. It is estimated that approximately 10% of all adults [14] and 8.7% of youth between the ages of 12 and 17 [15]( in Washington State need chemical dependency treatment. Untreated alcohol and other drug abuse is associated with higher crime rates, increased accidents and injuries, lower productivity, increased health problems [16]. In fact, the economic cost of substance abuse in Washington State was estimated to be $2.54 billion in 1996 [17].

There have been a number of national studies conducted with privately insured persons with a focus on savings associated with alcohol/drug treatment. Two recent studies serve as examples of this line of investigation:

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[9] Ratner, D. et al. 2001. *Wealth From Health: An Incentive Program For Disease Management And Population Management*. Lippincott's Case Management 6 (5): 184-204.
[10] Bodenheimer, T. op cit.
[11] Diabetes Prevention Program Research Group 2002. *Reduction In The Incidence Of Type 2 Diabetes With Lifestyle Intervention Or Metformin*. New England Journal of Medicine 346 (6) 393-403
[12] Sullivan Sd, Weiss KB, Lynn H, Mitchell H, et al. 2002. The cost-effectiveness of an inner-city asthma intervention for children. J Allergy and Clinical Immunology 110(4): 576-81
[13] Riegel B, Carlson B, Glaser D, Hoagland P. 2000. *Which Patients With Heart Failure Respond Best To Multidisciplinary Disease Management*? J ournal of Cardiac Failure 6 (4): 290-99
[14] Holzer, C. E., Kabel, J. R., & Nordlund, D. J. 1999. *Profile of Substance Use and Need for Treatment Services in Washington State.* Washington State Department of Social and Health Services, Research and Data Analysis Division.
[15] Kohlenberg, E., Nordlund, D., Treichler, B., Kabel, J., Lowin, A., & Landry, M. K. 2002. *Alcohol and Substance Use Among Adolescents in Washington State: Results from the 1998-1999 Adolescent Household Survey*. Washington State Department of Social and Health Services, Research and Data Analysis Division.
[16] Albert, D. 2002. *Tobacco, Alcohol, and Other Drug Abuse Trends in Washington State*. Washington State Department of Social and Health Services, Division of Alcohol and Substance Abuse
[17] Wickizer, T. M. 1999. *The Economic Costs of Drug and Alcohol Abuse in Washington State.* 1996. Seattle, WA: Department of Health Services, University of Washington.

- In a study of over 1,000 adult patients who entered the outpatient chemical dependency recovery program at Sacramento Kaiser Permanente over a 2-year period, results indicated a substantial decline in inappropriate utilization and cost (hospital and emergency room) following participation in outpatient chemical dependency treatment[18] .

- In a study of almost 600 patients who received chemical dependency treatment at a California health maintenance organization, integrated medical and substance abuse treatment was found to be cost-effective for individuals with substance-abuse related medical conditions. Twelve-month post-treatment medical outcomes showed significant reductions in inpatient medical use for patients with integrated services[19] .

In occupationally related conditions, there is a small but significant risk of chronic disability with common, non-catastrophic injuries such as low back pain and carpal tunnel syndrome. Literature exists on improving organization of care being delivered; including communicating best-practices and addressing psycho-social factors early such as accommodation of work restrictions by employers.[20] [21] [22] [23]. A well done randomized treatment comparison study in Quebec documented that physicians who incorporate occupation health best practices and coordinate care and return-to-work can substantially reduce disability rates[24]. (Loisel 1997) In Washington State, similar results were reported in a large prospective case control pilot study where workers who volunteered to be seen by doctors using occupational health best practices were compared with matched comparison groups. [25].

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[18] Parthasarathy, S., Weisner, C., Hu, The-Wei, & Moore, C. 2001. *Association Of Outpatient Alcohol And Drug Treatment With Health Care Utilization And Cost: Revisiting The Offset Hypothesis*. Journal of Studies on Alcohol, 62 (1), 89-97.

[19] Weisner, C., Mertens, J., Parthasarathy, S., Moore, C., & Lu, Y. 2001. *Integrating Primary Medical Care With Addiction Treatment. A Randomized Controlled Trial*. Journal of the American Medical Association, 286 (14), 1715-1723.

[20] Cheadle A, Franklin G, Wolfhagen C, et al. 1994. *Factors Influencing The Duration Of Work Related Disability: A Population Based Study Of Washington State Workers' Compensation*. American Journal of Public Health, 84(2):190-196.

[21] Loisel P, Abenheim L, Durand P, et al. *A Population-Based, Randomized Clinical Trial On Back Pain Management*. Spine 1997; 22(24):2911-2918.

[22] Mootz RD, Franklin GM, Stoner WH. 1999. *Strategies For Preventing Chronic Disability In Injured Workers.* Topics in Clinical Chiropractics ; 6(2):13-25.

[23] Wickizer TM, Franklin G, Plaeger-Brockway R, Mootz RD, Drylie D 2002. *Improving The Quality Of Occupational Health Care In Washington State: New Approaches To Designing Community-Based Health Care Systems*. Journal of Ambulatory Care Management, 25(2):43-52.

[24] Loisel, et al. *op cit*

[25] Kyes KB, Wickizer TM, Franklin G, Cain K, Cheadle A, Madden C, Murphy L, Plaeger-Brockway R, Weaver M. 1999. *Evaluation Of The Washington State Workers' Compensation Managed Care Pilot Project I: Medical Outcomes And Patient Satisfaction.*. Medical Care; 37:972-981.

## Appendix B
## Experience in Washington with DSM models of care:

**Diabetes Collaboratives**: The Washington State Department of Health has sponsored two sets of year long collaboratives devoted to improving the care that people with Diabetes receive in Washington State. The first effort included 13 practice teams and 10 health plans or provider networks, and focused on Best Practices. Co-sponsors included Qualis (formerly Pro-West) and the MacColl Institute for Healthcare Innovation. The second collaborative included 30 teams (24 reporting) and 6 health plans and focused on achieving control of specific diabetes related measures such as HbA1c and LDL cholesterol levels, blood pressure measurement and control, foot and eye exams and self management.

A third collaborative began November 2002 with a broadened focus on diabetes and adult preventive services that will include diabetes screening, influenza and pneumococcal vaccinations, mammography and Pap smears, and tobacco-cessation counseling. The project is recruiting participants.

**Substance abuse treatment**: In Washington State, alcohol/drug treatment is available for adults as well as youth through programs administered by the Department of Social and Health Services (DSHS). Treatment typically emphasizes individual and group therapy as well as alcohol/drug education, and other therapies as appropriate. Most treatment is provided in an outpatient setting (66% adults, 76% youth), although a significant percentage of patients participate in residential treatment[26] (29% adults, 19% youth). A continuum of care is recommended for patients who begin treatment in a residential setting, with the goal of moving them from more intensive residential to progressively less intensive outpatient settings. There are specialized treatment programs for particular populations such as pregnant and parenting women and for persons with co-occurring disorders (chemical dependency and mental health). There are also eleven opiate substitution programs statewide.[27] Although not regarded as treatment, detoxification is a short term residential service for individuals withdrawing from the effects of excessive or prolonged alcohol or other drug abuse. Detoxification services continue only until the person recovers from the transitory effects of acute intoxication[28] .

The state conducts an annual statewide client satisfaction survey which is designed to assess patient perceptions of the chemical dependency treatment services they have received. In the

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[26] There are three types of residential treatment programs in Washington State: ***Intensive Inpatient***, ***Recovery House***, and ***Long-Term Residential***. All take place in non-hospital facilities. ***Intensive Inpatient*** is a highly structured residential program lasting approximately 21 to 28 days. ***Recovery House*** provides social, recreational, and occupational therapy as well as treatment in a drug/alcohol-free residential setting; participation in Recovery House typically follows from an Intensive Inpatient or Long- Term Residential stay. The focus is on helping patients re-enter the community and an outpatient phase of treatment. It typically lasts about 60 days. ***Long-term Residential*** treatment is a specialized program for chemically dependent persons who require periods of treatment in excess of 90 days. It includes domiciliary care, counseling, and other therapies to patients who reside at the treatment facility.

[27] Opiate substitution treatment is an outpatient service for individuals addicted to heroin or other opiates; treatment agencies provide counseling and daily or near-daily administration of methadone or other approved substitute drugs.

[28] Albert D 2002. *Tobacco, Alcohol, and Other Drug Abuse Trends in Washington State.* Washington State Department of Social and Health Services, Division of Alcohol and Substance Abuse.

2002 survey, over 12,000 patients participated; 96% reported they were satisfied with the service they received [29].

A number of studies conducted in Washington State illustrate reductions in health care costs associated with participation in alcohol/drug treatment. These have been conducted with a variety of populations including substance abusing pregnant women, SSI recipients, persons with co-occurring disorders (substance abuse & mental health), and indigent persons. Examples of findings from these studies follow:

- Average Medicaid costs for an infant's medical care during the first two years of life was 1.4 times greater for mothers with untreated substance abuse compared to those who received treatment in the prenatal period ($5,447 versus $3,694) and more than twice that for infants of other, non-substance abusing Medicaid women ($5,447 versus $2,648)[30] .

- Untreated chemically dependent Supplemental Security Income (SSI) recipients had $740/month higher medical costs than treated recipients--$540/month after adjusting for the cost of chemical dependency treatment [31].

- In a study of 534 patients discharged from a residential chemical dependency treatment program for persons with co-occurring disorders (chemical dependency & mental health), overall Medicaid-paid medical and psychiatric services decreased by 44%, from almost $5 million in the year before treatment to $2.8 million in the year after treatment [32].

- In a study of 735 patients discharged from a residential chemical dependency involuntary commitment program, the cost of their Medicaid-paid medical and psychiatric services decreased from $3.8 million in the year before admission to $2.7 million in the year following discharge [33].

- Over a 5-year follow-up period, ADATSA[34] clients who received chemical dependency treatment had medical costs that were $4,540 less than those of the average untreated client [35].

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[29] Rodriguez, F. *Clients Speak Out 2002. Second Annual Statewide Client Satisfaction Survey***.** Washington State Department of Social and Health Services, Division of Alcohol and Substance Abuse,

[30] Cawthon L, & Schrager L, 1995. *First Steps Database. Substance Abuse, Treatment, and Birth Outcomes for Pregnant and Postpartum Women in Washington State***.** Washington State Department of Social and Health Services, Research and Data Analysis Division.

[31] Estee S., & Nordlund D, 2001. *Washington State Supplemental Security Income (SSI) Cost Offset Pilot Project. 2001 Progress Report.* Washington State Department of Social and Health Services, Research and Data Analysis Division.

[32] Maynard C, Cox G B, Krupski A., Stark K, 1999. *Utilization Of Services For Mentally Ill Chemically Abusing Patients Discharged From Residential Treatment*. The Journal of Behavioral Health Services & Research, *26***,** 219-228.

[33] Maynard C, Cox G.., Krupski A., & Stark K, 2000. *Utilization Of Services By Persons Discharged From Involuntary Chemical Dependency Treatment*. Journal of Addictive Diseases**,** *19* (2), 83-9.

[34] ADATSA is a state funded program that provides a continuum of care to persons who are indigent and deemed unemployable as a result of alcoholism and/or other drug addiction. ADATSA stands for the legislation that funds this program, the Alcoholism and Drug Addiction Treatment and Support Act.

[35] Luchansky B, & Longhi D 1997. *Briefing Paper. Cost Savings in Medicaid Medical Expenses: An Outcome of Publicly Funded Chemical Dependency Treatment in Washington State. A Five Year Cost Savings Study of Indigent*

- The average ADATSA client who participated in chemical dependency treatment incurred an estimated $713 in (adjusted) Medicaid costs compared to $1,360 for the untreated comparison group. Approximately two-thirds ($422 of $647) of the cost reduction represented a reduction in inpatient hospital costs[36] .

**Department of Labor and Industries Occupational Health Services (OHS) pilot project**

The Department of Labor and Industries has been engaged in several community based pilot studies to identify possible administrative and delivery system refinements that can improve the quality and outcomes of occupationally injured workers in the state[3738] Based on this work, the department has initiated a new study called the Occupational Health Services (OHS) project which has taken knowledge of best practices from previous agency research from previous agency research as well as the broader scientific literature (see literature review).

OHS project partners with the state's employer, labor, and provider communities to establish a community Center for Occupational Health and Education (COHE) that can work with doctors, labor representatives, and employers locally to improve care and reduce disability. In addition to establishing financial incentives for best occupational health practices, the study track workers to identify when disability risk increases (failure to return to work within a few weeks) and seeks to identify barriers to recovery or return to work. The study is measuring key outcomes for process of care improvements, administrative outcomes (eg, time loss), and workers health outcomes. The study is currently midway in implementation of a regional center and expects to begin a 2-year evaluation of the pilot's effectiveness in 2003. The OHS project focuses both on organization/coordination of care and enhancing occupational health best practices information to physicians in the community. The project is unique in that it tests preserving a workers free choice of physician while increasing incorporation of best practices community wide crossing tradition proprietary health plan and network boundaries.

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*Persons Served by Washington State's Alcoholism and Drug Addiction Treatment and Support Act (ADATSA)*. Washington State Department of Social and Health Services, Research and Data Analysis Division.

[36] Wickizer T & Longhi,D, 1997. *Economic Benefits and Costs Associated with Substance Abuse Treatment Provided to Indigent Clients through the Washington State's Alcoholism and Drug Addiction Treatment and Support Act (ADATSA) Program*. Washington State Department of Social and Health Services, Division of Alcohol and Substance Abuse.

[37] Wickizer TM, Franklin GM, Plaeger-Brockway R, Mootz RD, 2001. *Realigning Incentives And Clinical Management Processes To Improve Quality: The Washington State Occupational Health Services Project*. Milbank Quarterly 79(1):5-33

[38] Wickizer TM, Franklin G, Plaeger-Brockway R, Mootz RD, Drylie D, 2002. *Improving the Quality of Occupational Health Care in Washington State: New Approaches to Designing Community-Based Health Care Systems*. Journal of Ambulatory Care Management, 25(2):43-52.

**MAA's Disease Management for Fee for Service clients**

MAA was directed by the legislature to implement at least three disease management programs for our Fee For Service (FFS) clients, in order to improve client health and reduce associated medical costs. MAA carried out RFI and RFP processes, and rolled out comprehensive disease management FFS clients with asthma, diabetes, congestive heart failure, end stage renal disease, and chronic renal failure between April and August 2002. It is anticipated that approximately 20,000 clients will eventually be served in the programs, which are administered by two disease management vendors. Common components include availability of nursing advice by phone, nurse case management where necessary, coordination of care with existing case management, encouragement/strengthening of the clients' medical home, and improved adherence to established guidelines for treatment and monitoring of clients' chronic conditions. Expenditures for the disease management programs are expected by the legislature to be offset by reductions in medical costs, and to result in net savings. Program quality components will be evaluated by the University of Washington, while Milliman USA, MAA actuaries, will evaluate the financial components of the program. Appendix C includes current details on MAA's disease management programs for FFS clients.

**Medicaid Integration Partnership**

The Medicaid Integration Partnership (MIP) is a series of state initiatives that focus on clients who receive services from multiple agencies and/or are high cost service users. MIP targets clients with complex needs that include some combination of medical, mental health, substance abuse, and/or long-term care services. The projects will improve client outcomes and service cost-effectiveness through client access to a collaborative system of health-care that slows the progression of illness and disability, improves health outcomes, and lowers cost of care. Successful implementation of MIP depends on partnership between various divisions within the state's Department of Social and Health Services, Aging and Disability Services, Medical Assistance, Health and Rehabilitative Services Administrations, the Office of the Secretary, the Budget office, and Research and Data Analysis Division. Representatives of participating programs have met on a regular basis since the project began in May 2002. The Research and Data Analysis Division has supported the development of integrated projects through analysis of DSHS costs and service use, for aged, blind and disabled clients in general[39], and for those served by the Mental Health Division.[40] Integration-oriented projects in the planning phase include contracting to provide medical oversight for clients in nursing homes and improved integration of services for those in a variety of home/community treatment settings.

The MIP has thus far included an RFI process, which received responses from community resources interested in collaborating with the partnership. Plans for 2003 include development of an RFP based on results of the RFI.

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[39] Estee S & Mancuso D, 2003. *Expenditures and Use of DSHS Services: Aged, Blind, and Disabled Clients FY 2001*. Washington State Department of Social and Health Services, Research and Data Analysis Division.
[40] Mancuso D & Estee S, 2003. *Adult Aged, Blind, and Disabled Clients Served by the Mental Health Division.. Characteristics and Use of Services, FY 2001* Washington State Department of Social and Health Services, Research and Data Analysis Division.

**Health plans, both HO and commercial, with DSM initiatives--**

An effort was made to collect information from the managed care plans that contract with state programs, primarily those contracted with the Health Care Authority and with the Medical Assistance (Medicaid) Program. All currently contracted plans were contacted, although information was received from only three. This is shown in Appendix D. In general, plans with Medicaid and non-Medicaid lines of business do not distinguish among their product lines for the provision of disease management services. Two plans, with large Medicaid enrollment and minimal commercial members, have a total of approximately 13,500 people with asthma and 6,000 people with diabetes that are receiving disease management services.

Incomplete estimates of participation in the disease management programs for common diseases like diabetes and asthma suggest that both for Medicaid clients and other state residents, the penetration of disease management services does not approximate the prevalence of the diseases statewide.

A comparison of HEDIS health plan measures for indicators of diabetes care between commercial and Medicaid clients cared for by one plan where there is a strong diabetes control program, shows some differences in results. The information is not sufficient to allow any global conclusions. These issues are being investigated.

**Public Employees Benefits Board (PEBB) programs:**

The self-insured UMP that serves public employees and retirees has participated in the Washington State Diabetes Collaborative and has developed an internal project. The internal project has included smoking cessation and other educational materials for patients and providers; enhanced provider reimbursement for planned visits for people with diabetes, provision of pagers, and expansion of benefits with no deductibles or co-pays. Preliminary evaluation is in process.

**Appendix C**
**MAA Fee for Service Disease Management[41]**

| Disease | Referrals | Enrolled | High Risk Identified |
|---|---|---|---|
| Asthma | 9716 | 6909 | 720 |
| CHF | 2156 | 1654 | 446 |
| Diabetes | 8806 | 6888 | 1743 |
| ESRD | | 143 | 64 |

**Clinical Metrics**

| Disease State | Activity | Clients (%) complying at initial assessment | Benchmark |
|---|---|---|---|
| **Asthma (n=2967)** | | | |
| | **Daily preventative medication** | **66%** | >60% |
| | Action Plan | 13% | >60% |
| | Flu Vaccine | 45% | >55% |
| | Current Smoker | 36% | <20% |
| | | | |
| **CHF (n=581)** | | | |
| | Weigh Daily | 27% | >30% |
| | Maintain Weight Log | 26% | >40% |
| | **Rx ACE Inhibitor/ARB** | **60%** | >50% |
| | Flu Vaccine | 51% | >55% |
| | Salt Intake | 36% | >40% |
| | **Read food Labels** | **76%** | >60% |
| | | | |
| **Diabetes (n=2543)** | | | |
| | Monitor Daily Blood Sugar | 21% | >60% |
| | Take ASA or Antiplatelet | 41% | >45% |
| | **HbA1c past year** | **65%** | >60% |
| | Flu Vaccine | 53% | >55% |
| | **Lipid Panel past year** | **74%** | >50% |

[41] Source: DSM Status Reports for the period December 1, 2002 to December 31, 2002 and Summary Reports for April 1, 2002 – December 31, 2002